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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,009	06/18/2001	Bor-Ming Hsieh	MSI-749US	3405
22801	7590	11/16/2005	EXAMINER	
LEE & HAYES PLLC 421 W RIVERSIDE AVENUE SUITE 500 SPOKANE, WA 99201			WU, QING YUAN	
			ART UNIT	PAPER NUMBER
			2194	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/884,009	Applicant(s) HSIEH, BOR-MING	
	Examiner Qing-Yuan Wu	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8-11, 13-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-11, 13-21 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-6, 8-11, 13-21 and 23 are pending in the application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-6, 8-11, 13-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young (U.S. Patent 6,609,161).

4. Young was cited in the last office action.

5. As to claim 23, Young teaches the invention substantially as claimed including managing a run queue with a run queue data structure, the run queue data structure comprising [abstract, line 1]:

a first dimension data field comprising a first plurality of threads sorted with respect to command threads priority [col. 2, lines 25-29; abstract, 275, Fig. 3B]; and

a second dimension data field comprising a second plurality of threads sorted based on thread priority, the second plurality of threads comprising a head thread (i.e. a target head command

block) and one or more other threads [col. 2, lines 30-35; SCBs 34, 167, 05, 270A-272A, Fig. 3B; col. 8, lines 30-36].

6. Young does not specifically teach a root thread. However, Young disclosed a target head command block in the first queue that is a part of the second queue [col. 2, lines 33-49].

7. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that the target head command block is used to associate the second queue to the first queue.

8. As to claim 1, this claim is rejected for the same reason as claim 23 above. In addition, Young teaches the invention substantially as claimed including, associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue [col. 3, lines 13-18; col. 6, lines 1-24; col. 7, lines 47-55; col. 8, lines 30-36; 270A, Fig. 3C].

9. Young does not specifically teach in a deterministic amount of time equivalent to an amount of time to insert a single thread into the run queue. However, Young disclosed appending the target queue with SCSI control blocks (hereafter SCBs) remaining to be transmitted to the end of the common queue [col. 7, lines 36-55].

10. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that the time required to associate/insert the plurality of threads in

the run queue/common queue is equivalent to inserting a single thread in the run queue because only a single thread is being inserted (i.e. changes in common tail pointer).

11. As to claim 2, Young teaches the invention substantially as claimed including wherein the second plurality of threads comprises a root thread, and wherein associating the second plurality of threads with the run queue further comprises inserting only the root thread into the run queue to represent the second plurality of nodes [col. 2, lines 33-35, 43-47].

12. As to claim 3, Young does not specifically teach and inserting each thread in the second plurality of threads into the run queue independent of any additional other queue access.

However, Young disclosed inserting SCBs from target queues into common queue [col. 7, lines 36-55]. It would have been obvious to one of an ordinary skill in the art at the time the invention was made, to have recognized that no other queues are being access when a preceding thread is inserted in to the run queue.

13. As to claim 4, this claim is rejected for the same reason as claim 2 above.

14. As to claim 5, this claim is rejected for the same reason as claim 2 above. In addition, Young teaches the invention substantially as claimed including removing the root thread from the run queue; and responsive to removing the root thread, inserting a next thread of the second plurality of threads into the run queue such that the priority based scheduling semantic of the run queue is preserved [col. 7, lines 36-55; Figs. 3B-3C].

15. As to claim 6, this claim is rejected for the same reason as claims 3 and 5 above.
16. As to claim 8, Young teaches substantially the method for managing a run queue.
Therefore Young teaches substantially the system for implementing the method.
17. As to claim 9, this claim is rejected for the same reason as claim 3 above.
18. As to claim 10, this claim is rejected for the same reason as claim 1 above.
19. As to claim 11, this claim is rejected for the same reason as claim 2 above.
20. As to claim 13, this claim is rejected for the same reason as claim 23 above. In addition, Young teaches the queue being implemented in a linked list data structure [col. 2, lines 25-36].
21. As to claims 14-15, these claims are rejected for the same reason as claims 5-6 above.
22. As to claims 16, Young teaches substantially the method for managing a run queue.
Therefore Young teaches substantially the computer-program instructions for implementing the method.

23. As to claim 17, this claim is rejected for the same reason as claim 2 above.
24. As to claim 18, this claim is rejected for the same reason as claim 13 above.
25. As to claim 19, this claim is rejected for the same reason as claim 5 above.
26. As to claim 20, this claim is rejected for the same reason as claim 3 above.
27. As to claim 21, this claim is rejected for the same reason as claim 6 above.
28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
U.S. Patent 6,081,507 to Chao et al, U.S. PG Publication 2002/0141427A1 to McAlpine teach multidimensional queue.

Response to Arguments

29. Applicant's arguments filed 8/24/05 have been fully considered but they are not persuasive.
30. In the remarks, Applicant argued in substance that:

- a. Young's SCSI command execution queue is not a run queue, and Young's SCSI command blocks are not threads.
- b. Young does not teach "associating a second plurality of threads that is priority sorted with the run queue in a manner that maintains a priority based scheduling semantic of the run queue."
- c. The action does not combine Young with any other reference and since Young does not teach or suggest each and every element of claim 1, the features of claim 1 are not obvious in view of Young, therefore the 35 USC § 103(a) rejection of claim 1 is improper.

31. Examiner respectfully traversed Applicant's remarks:

32. As to point (a), given the broadest reasonable interpretation of "run queue" as a queue where programs/processes/threads/commands are taking from the head of the queue to be executed or process, the Examiner believed this limitation have been met. In addition, given the broadest reasonable interpretation of a "thread" defined by Microsoft Computer Dictionary Fifth Edition as "a process that is part of a larger process or program," the Examiner believed that "a command" or "a SCSI command block" meets this limitation. Applicant is reminded that claimed subject matter, not the specification, is the measure of invention. Limitations in the specification cannot be read into the claims for the purpose of avoiding the prior art. If Applicant believes the limitation is important feature of the invention, it should be incorporated into the claims for further consideration. In re Self, 213 USPQ 1,5 (CCPA 1982); In re Priest, 199 USPQ 11,15 (CCPA 1978).

33. As to point (b), Young teaches appending hardware command block to a tail of a common queue [col. 3, lines 13-18] and that priority of SCB execution is maintained according to the order of delivery by host system [col. 8, lines 30-36].

34. As to point (c), the 35 USC § 103(a) rejection in claim 1 was based on modification of a single reference (i.e. Young), and such a rejection is proper, please refer to MPEP 706.02(j) and the rejection for claim 1 above.

35. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

36. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Qing-Yuan Wu whose telephone number is (571) 272-3776. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Thomson can be reached on (571) 272-3718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WILLIAM THOMSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

Qing-Yuan Wu

Examiner

Art Unit 2194